

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
Neches:					
Rockland, Tex.....	22	(3)	6	26.8	1.
Beaumont, Tex.....	7	(2)	13	13.4	2.
Trinity:					
Dallas, Tex.....	25	(3)	7	34.5	May 17.
Trinidad, Tex.....	28	(2)	11	39.6	May 22.
Long Lake, Tex.....	40	(2)	12	45.2	3.
Riverside, Tex.....	40	(2)	4	46.2	1.
Liberty, Tex.....	25	(2)	22	28.3	2.
Brazos:					
Washington, Tex.....	45	(3)	5	51.0	1.
Hempstead, Tex.....	40	May 31	5	43.8	2.
Rosenberg, Tex.....	40	2	8	46.2	6.
Freeport, Tex.....	4	5	12	7.4	10.
Colorado: Columbus, Tex.....	28	(2)	3	38.0	1.
Guadalupe:					
Gonzales, Tex.....	22	(2)	2	34.0	May 29.
Victoria, Tex.....	16	(2)	6	26.2	2.
Nueces: Three Rivers, Tex.....	37	(2)	4	42.0	May 31.
Rio Grande: San Marcial, N. Mex.....	3	(2)	4	4.2	May 23-25.
PACIFIC DRAINAGE					
Colorado:					
Fruita, Colo.....	12	3	12	13.2	4.
Parker, Ariz.....	7	(2)	(1)	11.9	2.
Colorado, Roaring Fork: Carbon-					
dale, Colo.....	5	2	12	6.1	9.
		14	15	5.4	15.
		20	24	5.2	21-22.
Eagle: Eagle, Colo.....	5	2	11	6.1	19.
Gunnison: Delta, Colo.....	9	(2)	18	11.7	May 26.
		22	23	9.0	22-23.
Columbia:					
Marcus, Wash.....	21	6	27	27.8	17.
Vancouver, Wash.....	15	12	26	17.7	20.

¹ Continued at end of month.² Continued from last month.

551.575 : 633 (73)

THE EFFECT OF WEATHER ON CROPS AND FARMING OPERATIONS, JUNE, 1929

By W. A. MATTICE

General summary.—During the first decade continued cool weather retarded the growth of warm-weather crops east of the Mississippi River, but there was a favorable warming up toward the close of the period. The weather was mostly favorable in the South, while in the west Gulf area farm work and crops advanced satisfactorily under beneficial conditions. In some interior sections the soil continued too wet to work, but in the northern Great Plains the weather favored agricultural interests; rain was needed in an extensive area of the North from north-eastern Iowa and Wisconsin eastward. In the far Northwest local showers or generous rains were helpful, especially for the grain crops, but there was considerable damage to cherries and mown hay in northern California, while moisture was needed badly in the Great Basin and much of New Mexico.

During the second decade further rains in some persistently wet sections were detrimental, but the weather in general was largely favorable for agricultural interests. Showers were helpful in the Lake region, while in the South temperature conditions were beneficial and ideal weather for ripening grains and for harvest prevailed in the Southwest. In the central and northern Great Plains growth was rapid, but it continued dry in the far Southwest, while rains were helpful in the Great Basin and the far Northwest.

During the last decade droughty conditions were relieved in the Northeast but night temperatures were rather too cool for best growth of warm-weather vegetation from the Ohio Valley northward, otherwise warmth was sufficient and crops made satisfactory advance. Timely and beneficial rains occurred in the upper Mississippi Valley, but drought prevailed and rainfall was badly needed in a rather extensive area of the Northwest, including the principal spring-wheat sections, where grains

were heading short; rain was also needed in the far Southwest.

Small grains.—During the first decade winter wheat showed improvement in the Ohio Valley, with the general condition good to excellent; the crop was heading in many parts and some ripening was reported. In the trans-Mississippi States wheat did well and in the Great Plains satisfactory advance was made; progress and condition were mostly fair to good, except that poor condition was indicated over large areas of Oklahoma and there was some rust and lodging in Kansas. Favorable conditions prevailed elsewhere. During the second decade winter wheat heading became general in the Ohio Valley and harvest had begun in the lower valley districts. Very good to excellent conditions prevailed in the Great Plains, with the crop heading in South Dakota; ideal harvest weather prevailed in most of the Southwest, with rapid advance in this work. During the last decade conditions were mostly favorable for harvesting wheat in the Ohio Valley, with this work general to the central portions; the crop was turning in Iowa, while harvest was rather general in the south-central Great Plains and in the Southwest under mostly favorable conditions.

Spring wheat made good advance generally during the first two decades, except for some local dryness, but toward the close of the month, droughty conditions prevailed in much of the northern belt, with deterioration noted in many parts, especially in Montana where the crop was backward and burning locally. Oats did well generally, except in the Ohio Valley and some central sections, where they were heading on short straw. Other small grains mostly did well except toward the close of the month rain was needed in the northern Great Plains.

Corn.—During the first decade conditions were fairly favorable for field work in the Corn Belt, except that in some persistently wet sections soggy fields prevented active operations with considerable corn not yet planted. Elsewhere planting was largely completed, but in the eastern part of the belt cool weather was unfavorable for germination. In Iowa progress and condition were generally fair, but the crop was very irregular, while conditions were mostly favorable in the Plains States. During the second decade further rains were detrimental in preventing completion of planting in the central belt, but in the upper Ohio Valley rains and warm weather were beneficial and in the western half of the belt conditions were largely favorable. Progress and condition were still mostly fair in Iowa, while in the Plains the period was again favorable. During the last decade the crop continued generally late and very uneven, especially in Iowa, where it ranged from shoulder high to a few inches tall. It was rather cool for best growth, but advance was generally favored, while in Iowa rains were beneficial and progress was very good to excellent; growth was satisfactory elsewhere.

Cotton.—During the first decade there was some interruption to field work in the Atlantic States and general coolness east of the Mississippi River retarded growth, but the general progress of cotton was fair to fairly good, with squares and blooms increasing rapidly in southern parts and local bloom to South Carolina. The weather was mostly favorable in Arkansas and Louisiana, while moderate warmth and much sunshine permitted resumption of cultivation and chopping in Texas, where growth was good, but in Oklahoma it continued too wet in the central and eastern portions, where progress was poor to only fair, but good advance was noted elsewhere. During the second decade good growth was possible in

the Atlantic States and fields were clean and well cultivated, but in the central Gulf area it was rather too cool for best growth, although good progress was made. Conditions were generally favorable in Tennessee, Arkansas, and Louisiana, with good to excellent growth noted, while in Oklahoma adequate warmth and sunshine were very helpful, although there were still reports of grass and weeds in the east. General condition was spotted in Texas, but growth was very good under favorable weather and squares were forming to central parts, while a small amount of cotton was marketed in the South.

During the last decade there was too much rain in most sections of the Atlantic States, which hindered cultivation and favored increased weevil activity and there were complaints of fields becoming weedy and plants not fruiting well. In the central Gulf area progress was fair to excellent, but there was too frequent rain locally, although some States had dry, sunny weather, which was excellent for growth and checking weevil. The weather was also mostly favorable in Oklahoma and Texas, with picking progressing in southern Texas.

Miscellaneous crops.—Ranges, pastures, and meadows did well in most sections east of the Rocky Mountains, except for some local dryness in the Lake region and rather extensive need of moisture in the northern Great Plains. Local areas west of the Rockies also needed a replenishment of water supplies, but range feed still appeared ample and livestock were mostly thriving. Sheep shearing had been completed in many parts by the close of the month.

Potatoes made satisfactory advance and truck crops were largely in good condition, except that cool nights retarded growth locally. Tobacco curing became general in the Southeast and growth and cultivation were satisfactory in Kentucky at the close of the month. Sugar beets continued to do well throughout the month, while sugar cane was thriving generally. Citrus groves were in excellent condition in Florida, with the fruit holding well, and oranges were excellent in California.

WEATHER OF THE ATLANTIC AND PACIFIC OCEANS

551.506 (261.1)
NORTH ATLANTIC OCEAN

By F. A. YOUNG

June, 1929, lived up to its reputation as being one of the quietest months of the year over the North Atlantic, and gales were not observed in more than four days in any 5° square, the maximum occurring in the square between the forty-fifth and fiftieth parallels and twenty-fifth and thirtieth meridians. About the only unusual feature was a tropical disturbance during the latter part of the month; that will be referred to later. As shown by Table 1, there were no unusually large departures, and the pressure distribution, as a whole, did not differ greatly from the normal.

Fog was unusually prevalent over the greater part of the ocean and was reported on from 17 to 21 days between the fortieth and forty-fifth parallels, west of the forty-fifth meridian. Fog was also observed from 8 to 12 days over the middle and eastern sections of the steamer lanes, from 3 to 5 days along the European coast, and on 9 days along the American coast, between Hatteras and New York.

TABLE 1.—Averages, departures, and extremes of atmospheric pressure at sea level, 8 a. m. (seventy-fifth meridian). North Atlantic Ocean, June, 1929

Stations	Average pressure	Departure	High-est	Date	Low-est	Date
	<i>Inches</i>	<i>Inch</i>	<i>Inches</i>		<i>Inches</i>	
Julianehaab, Greenland.....	29.90	(1)	30.20	21st ¹	29.64	9th.
Belle Isle, Newfoundland.....	29.86	+0.02	30.26	6th ²	29.38	18th.
Halifax, Nova Scotia.....	29.94	-0.03	30.24	23d	29.60	1st. ²
Nantucket.....	29.94	-0.06	30.12	9th	29.58	29th.
Hatteras.....	29.98	-0.04	30.20	17th	29.66	10th.
Key West.....	29.97	-0.02	30.12	14th	29.84	10th.
New Orleans.....	29.96	-0.04	30.16	31st	29.82	2d.
Cape Gracias, Nicaragua.....	29.88	-0.04	29.96	13th	29.82	11th. ²
Turks Island.....	30.09	+0.06	30.16	13th ²	30.00	4th. ²
Bermuda.....	30.19	+0.06	30.42	13th ²	29.90	3d.
Horta, Azores.....	30.17	-0.04	30.46	21st	29.76	27th.
Lerwick, Shetland Islands.....	29.83	+0.03	30.21	28th	29.34	6th.
Valencia, Ireland.....	30.03	+0.03	30.60	21st	29.46	6th.
London.....	30.02	+0.09	30.46	21st	29.41	6th.

¹ No normal available.

² And on other date or dates.

³ From normals shown on Hydrographic Office Pilot Chart, based on observations at Greenwich mean noon, or 7 a. m. seventy-fifth meridian.

⁴ From normals based on 8 a. m. observations.

On May 30 and 31 a well-developed disturbance was central near 45° N., 35° W. This low moved slowly toward the NNE., decreasing in intensity, and on June 1 the center was near 50° N., 31° W., with moderate easterly and southerly gales in the northern and eastern quadrants, respectively. On the 1st the station at Horta, Azores, reported a southerly wind, force 8, and vessels in the vicinity encountered southwesterly to southerly winds, force 6 to 7.

From the 2d to 7th the conditions over the ocean were, as a rule, comparatively featureless, with moderate winds prevailing, except that on the 3d a slight depression of limited extent was in the vicinity of the Bermudas, and on the 4th northeast winds of force 7 to 8 were reported off the American coast between Jacksonville and Charleston, while on the 5th southerly to southwesterly winds of force 7 were encountered over a limited area in the middle section of the southern steamer lanes.

On the 10th a moderate Low was central about 200 miles east of Halifax, and on the 11th was about the same distance east of Nantucket. On the 10th and 11th there was also a disturbance near the fiftieth parallel between the twentieth and thirty-fifth meridians.

Charts VIII to XI show the conditions from the 12th to 15th, inclusive, and give an idea of the weather encountered by the airplane *Yellow Bird*, that took off from Old Orchard Beach on the morning of the 13th, and landed on the beach near Santandar, Spain, late in the afternoon of the 14th.

From the 16th to 24th there ensued another period of comparatively favorable weather and slight pressure gradients over the ocean as a whole, although on the 19th Belle Isle, Newfoundland, reported a northerly wind, force 9, with rain, and barometer reading of 29.46 inches.

On the 25th there appeared in the middle section of the Gulf of Mexico the first tropical disturbance of the season. This was of limited extent and for the most part, of comparatively slight intensity, as it moved slowly westward, being on the 28th central near Brownsville, Tex. Up to the time of writing the American steamships *Trinidadian* and *Gulfoil* were the only vessels to render regular storm reports relating to this disturb-